SPECIFICATION

[Insert title of invention]GUIDE WITH PROGRAM DELIVERING LINKS

Cross Reference to Related Applications

This application is a continuation-in-part (CIP) of and relates to co-pending application entitled "METHOD AND APPARATUS FOR LIMITING ACCESS TO SIGNALS DELIVERED VIA THE INTERNET, having serial number 09/538,215 and filed on March 30, 2000, which is a CIP of 09/092,128 for "METHOD AND APPARATUS FOR LIMITING ACCESS TO SATELLITE COMMUNICATION SIGNALS" filed on June 5, 1998, now issued as U.S. Patent 6,147,642. This application also is related to co-pending application entitled "METHOD AND SYSTEM FOR PROVIDING HOUSEHOLD LEVEL TELEVISION PROGRAMMING INFORMATION", having serial number 07/681,171, which was filed on February 8, 2001, and assigned to the same assignee. This application also is related to co-pending application entitled "INDIVIDUALIZED CONTENT GUIDE", serial number 09/681,172, which was also filed on February 8, 2001, and assigned to the same assignee. The above-referenced applications are incorporated herein in their entirety by these references.

Background of Invention

[0001]   In recent years, with the proliferation of sources of television programming including conventional terrestrially broadcast TV, cable TV, and satellite-delivered TV, often an overwhelming number of programming choices exist for a consumer. Consumers often desire to have a guide which only shows the programming choices available at various selected time slots. The magazine, TV Guide, is one well-known example of such a printed programming guide.

[0002]   TV Guide Online is an example of a web-based programming guide which provides a user with a programming list which is configurable using drop-down boxes or links to enable customers to switch or sort the content of the display to another source; e.g. from cable only to broadcast only, etc. Another variant of TV Guide Online is delivered to the customer over the customer"s cable TV connection.

[0003]   While such web-based programming guides have enjoyed success in the past, they have some drawbacks. First of all, the web-based TV Guide Online generally requires the user to switch from a computer to a television and to remember the channel number to which to tune the television. Some PCs have had PCDTV boards therein which allow a PC user to watch television, but the TV Guide Online user would be required to switch between computer programs (one for viewing TV and another for browsing the internet), then remember the channel, and then tune the PCDTV board to the correct channel. Secondly, to the best knowledge of the inventors, the TV Guide Online web-programming guide does not include information related to programming available for delivery to the user over the internet. The TV Guide Online programming guide, which is delivered along with cable TV services, does not provide any information to a PC, and it does not provide information to cable users about broadcast stations unless they are included in the package of channels delivered via cable TV.

[0004]   Consequently, there exists a need for improved methods and systems for providing TV programming information and TV programming to PC users in an efficient manner.

Summary of Invention

[0005]   It is an object of the present invention to provide a system and method for providing TV programming information and TV programming in an efficient manner.

[0006]   It is a feature of the present invention to include a PCDTV board and to tune the PCDTV board to a particular channel when a viewer, using a web-based program guide, clicks on a program listing for that channel.

[0007]   It is yet another feature of the present invention to link a program listing in a web-based program guide to a particular address on the web which is providing television programming.

[0008]   It is yet another feature to include a virtual VCR application which allows a PC user to designate the TV programming for recording on the PC, or i.e. "program" the virtual VCR to record a particular program; by clicking on a program listing in the web-based program guide.

[0009]   It is yet another feature of the present invention to record and distribute information relating to the choices and selections made by the user for use in research and ratings systems.

[0010]   It is an advantage of the present invention to achieve improved efficiency in delivery of programming and programming information to PC users.

[0011]   The present invention is an apparatus and method for providing TV programming information and programming to PC users, which is designed to satisfy the aforementioned needs, provide the previously stated objects, include the above-listed features, and achieve the already articulated advantages. The present invention is carried out in a "wasted time-less" manner in a sense that the time consumed by a PC user in transferring web-based programming information to a device for receiving TV programming and tuning or programming thereon a program which was previously identified on the web-based guide, has been greatly reduced.

[0012]   Accordingly, the present invention is a system and method for delivery of TV programming information and programming, including a hyperlink in a web-based programming guide which first, either tunes a PCDTV board or retrieves TV programming from a web site by a mere click by the user, and then secondly, either displays the programming or records the programming on a PC.

Brief Description of Drawings

[0013]

The invention may be more fully understood by reading the following

description of the preferred embodiments of the invention, in conjunction with the appended drawings wherein:

[0014]   Figure 1 is a simplified view of a system of the present invention, which PC of the present invention has a PCDTV board and has a programming guide display thereon.

[0015]   Figure 2 is a simplified view of a display screen of the programming guide of the present invention, which includes hypertext links in the cells in the timed columns.

[0016]   Figure 3 is a simplified view of the structure of the system of the present invention.

[0017]   Figure 4 is a simplified view of the interface between an internet browser containing the programming information, a television tuner card, and various other application software.

Detailed Description

[0018]
Now referring to the drawings wherein like numerals refer to like matter throughout, and more specifically referring to Figure 1, there is shown a system generally designated 100 which includes a user PC 302 which includes a PC display device 102, which could be any type of display device capable of viewing web pages or portions thereof. PC display device 102 is coupled to microprocessor 104 and display drivers 106 in a well-known manner. Microprocessor 104 has coupled thereto: a memory 108, data storage drives 110, and a PCDTV expansion board 112. PCDTV expansion board 112 can be an ISA, PCI or other type of expansion card, or it may be any type of circuitry which performs the function of tuning a television receiver within a PC. Throughout this document, PCDTV expansion board 112 shall be read to include any type of device, software or circuitry which is coupled to a PC either internally as an expansion card or externally as through a USB or other port. PCDTV expansion board 112 may have a PCDTV board memory section 114 therein which includes dedicated memory. An input/output function 116 is shown in Figure 1 as coupling various external devices and/or I/O devices,

such as broadcast television antenna 118, mouse 122, coaxial antenna cable 124, network connection jack 126, and keyboard 120. These may be coupled to the microprocessor 104 in any functional manner. Coaxial antenna cable 124 can be coupled to a source of cable television (CATV) or a satellite receiver or other source of television signals.

[0019]   Now referring to Figure 2, there is shown a program guide of the present invention generally designated 200, having a channel number column 202, call number column 204, and a plurality of time slot columns 206. Also shown is a programming cell 208 which is disposed in one of the time slot columns 206 and is associated with a particular channel number. Programming cell 208 includes information therein relating to a program which is associated with a particular time slot column and a particular channel number. More specifically, programming cell 208 may be in the form of a hypertext link which, when clicked by a user of user PC 302 will result in the program being displayed on the PC display device 102.

[0020]   This act of clicking on a programming cell 208 in a programming guide and having the actual programming then being delivered to the user at PC display device 102, is a key aspect of the present invention.

[0021]   There are numerous ways that the programming could be delivered to the PC display device 102 in response to a user clicking a hypertext link in a programming cell 208. Two examples of this will be described below.

[0022]   First of all, PCDTV expansion board 112 can be used to receive television signals from either broadcast television antenna 118 or coaxial antenna cable 124 or other source. PCDTV expansion board 112 actually demodulates the television signal, just as would a receiver in a typical television set. The demodulated signal is then provided to the PC display device 102 with the assistance of microprocessor 104 and display drivers 106 and other related hardware and software where appropriate. PCDTV expansion board 112 preferably is an off-the-shelf PCDTV expansion card. One novel feature of the present invention is to provide software, which may be resident in either memory 108 or PCDTV board memory section 114, which generates the necessary tuner instruction signals to tune PCDTV expansion

board 112 to a particular channel when the hypertext link in programming cell 208 is selected. The details of the software to generate the appropriate tuner instruction signals will vary from application to application, depending upon the type of PCDTV circuitry used. It is believed that an ordinary software engineer could readily create the necessary software code to achieve this result. Figure 4 outlines one possible implementation.

[0023]   Now referring to Figure 3, there is shown a simplified view of the present invention including user PC 302, internet 304 and programming guide providing computer 306. There would be well-known internet connections connecting the user PC 302 and the programming guide providing computer 306 with the internet 304.

[0024]   Referring to Figure 4, when a user selects content to view or record, JavaScript code (402) is activated. This code communicates the user request to the PC TV-tuner card driver software (502) and to other applications (701 or 601) as necessary.

[0025]   Another method of delivering television programming to the PC display device 102 in response to clicking a hypertext link in a programming cell 208 is to merely link the programming cell to a web address that is providing the desired programming. It is expected that in the future as broadband connections become more commonplace, television programming will be more available from sites on the internet. Currently, with the use of software by Real Video or others, limited live television programming, generally news and weather and generally not network programming, is available from a few stations. It is anticipated that more programming – including network programming, sports, movies etc. – will be available.

[0026]   The above discussion describes delivery of TV programming to a display device on a PC. It should be understood that the TV programming could be recorded on the user PC 302, as well as displayed on PC display device 102. If a virtual VCR is employed, then software will be disposed in data storage drives 110 and used in memory 108 to save the TV programming on data storage drives 110 for later use

and review. The details of virtual VCR software are not given here, but are believed to be readily written by an ordinary software engineer, who is given the benefit of reading this specification.

[0027]   Similarly, the present invention could be used to report user viewing choices for the purpose of gathering information for television programming ratings, consumer research and other reasons. It is believed that software to accomplish this reporting function could be readily developed by a person possessing ordinary skill in the art, and consequently, the details of any specific implementation are not included herein.

[0028]   Throughout this description, reference is made to a television programming, because it is believed that the beneficial aspects of the present invention would be most readily apparent when used in connection with such programming; however, it should be understood that the present invention is not intended to be so limited and should be hereby construed to include other content, such as FM radio, digital cable radio, etc.

[0029]   It is thought that the method and apparatus of the present invention will be understood from the foregoing description and that it will be apparent that various changes may be made in the form, construct steps, and arrangement of the parts and steps thereof, without departing from the spirit and scope of the invention or sacrificing all of their material advantages. The form herein described is merely a preferred exemplary embodiment thereof.